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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,656	09/29/2003	Takehiro Nakamura	15689.49.2	2350

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EXAMINER	
GREY, CHRISTOPHER P	

ART UNIT	PAPER NUMBER
2416	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/673,656	NAKAMURA ET AL.	
	Examiner	Art Unit	
	CHRISTOPHER P. GREY	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *7,12,13 and 15-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *7,12,13 and 15-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. In view of applicant's amendment filed on 10/29/08, the status of the application is still pending with respect to claims 7, 12, 13 and 15-17.

Response to Arguments

2. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 7, 12, 13 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dobrica (US 5875215) in view of Dann (US 4489354) in view of Tsuda et al. (US 5440267), hereinafter referred to as Tsuda.

Regarding Claim 7, Dobrica discloses a first communication apparatus (**Col 5 lines 42-43, transmission system)** comprising:

Dobrica discloses means for generating a signal, which has a frame comprising a plurality of slots, and includes one or more known pilot symbols **(fig 1, plurality of pilot symbols are depicted Col 6 lines 35-39).**

Dobrica discloses means for transmitting the signal **Col 5 lines 42-43, transmission system).**

Dobrica discloses means for receiving the signal **(fig 2, synchronizing unit is equivalent to a receiving unit).**

Dobrica discloses means for carrying out coherent detection by using the pilot symbols included in the signal **(Col 7 lines 52-54, coherently detected symbol; and abstract)** after the frame synchronization is established **(fig 2, where coherent detection takes place at the slicer 5 using the pilot symbols at 1 and 2. Furthermore, synchronization occurs at 1 using the frame synchronizing signal, where this occurs before coherent detection, and sync also occurs using the delay unit 4, which also occurs before the coherent detection at 5).**

Dobrica does not specifically disclose means for generating one or more sync words for frame alignment in each of the slots and means for establishing frame alignment by using the sync words included in the signal, and wherein the means for carrying out coherent detection carries out coherent detection by also using the sync words after the frame synchronization is established.

Dann discloses encoding a signal in an apparatus, where a sync generator (means), provides a sync word, which periodically interrupts a pilot signal **(Col 10 lines 64-67 and Col 12 lines 8-16 and Col 12 lines 61-65).**

Dann also discloses detecting receiving a modulated signal in an apparatus (fig 8), demodulating such a signal and a decoder for detecting a sync word **(Col 13 lines 37-38 and Col 14 lines 55-57)** and making a time based correction based on the detection **(Col 14 lines 66-67, time base correction equivalent to frame alignment).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the sync word generator as disclosed by Dann within the transmitter as disclosed by Dobrica. The motivation for the use of a sync word is to control at least part of the reproduction of the modulated information in the receiver (see abstract).

The combined teachings of Dobrica and Dann do not specifically disclose wherein the means for carrying out coherent detection carries out coherent detection by also using the sync words after the frame synchronization is established.

Tsuda discloses wherein the means for carrying out coherent detection **(fig 9, 202)** carries out coherent detection by also using the sync words **(Col 2 lines 15-22, where frame synchronization is established based on the detection of the sync word)** after the frame synchronization is established **(frame synchronization is established at 207 in fig 9 based on the sync word detected in 206, however, if the previous input signal was synchronized, the current signal will now use the sync word to perform the frame synchronization, where previously a frame synchronization occurred to the previous input signal).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention was disclosed to modify the combined teachings of Dobrica and Dann, as

taught by Tsuda in Col 1 lines 60-65, that such a modification will overcome the problem of carrier offset in coherent detection.

Regarding Claim 12, Dobrica discloses means for receiving a signal, which has a frame comprising a plurality of slots, and includes one or more known pilot symbols **(fig 1, plurality of pilot symbols are depicted Col 6 lines 35-39).**

means for carrying out coherent detection by using the pilot symbols included in the signal **(Col 7 lines 52-54, coherently detected symbol; and abstract)** after the frame synchronization is established **(fig 2, where coherent detection takes place at the slicer 5 using the pilot symbols at 1 and 2. Furthermore, synchronization occurs at 1 using the frame synchronizing signal, where this occurs before coherent detection, and sync also occurs using the delay unit 4, which also occurs before the coherent detection at 5)..**

Dobrica does not specifically disclose means for receiving one or more sync words for frame alignment in each of the slots and means for establishing frame alignment by using the sync words included in the signal, and wherein the means for carrying out coherent detection carries out coherent detection by also using the sync words after the frame synchronization is established.

Dann discloses encoding a signal in an apparatus, where a sync generator (means), provides a sync word, which periodically interrupts a pilot signal **(Col 10 lines 64-67 and Col 12 lines 8-16 and Col 12 lines 61-65).**

Dann also discloses detecting receiving a modulated signal in an apparatus (fig 8), demodulating such a signal and a decoder for detecting a sync word **(Col 13 lines**

37-38 and Col 14 lines 55-57) and making a time based correction based on the detection **(Col 14 lines 66-67, time base correction equivalent to frame alignment).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the sync word generator as disclosed by Dann within the transmitter as disclosed by Dobrica. The motivation for the use of a sync word is to control at least part of the reproduction of the modulated information in the receiver (see abstract).

The combined teachings of Dobrica and Dann do not specifically disclose wherein the means for carrying out coherent detection carries out coherent detection by also using the sync words after the frame synchronization is established.

Tsuda discloses wherein the means for carrying out coherent detection **(fig 9, 202)** carries out coherent detection by also using the sync words **(Col 2 lines 15-22, where frame synchronization is established based on the detection of the sync word)** after the frame synchronization is established **(frame synchronization is established at 207 in fig 9 based on the sync word detected in 206, however, if the previous input signal was synchronized, the current signal will now use the sync word to perform the frame synchronization, where previously a frame synchronization occurred to the previous input signal).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention was disclosed to modify the combined teachings of Dobrica and Dann, as taught by Tsuda in Col 1 lines 60-65, that such a modification will overcome the problem of carrier offset in coherent detection.

Regarding Claim 13, Dobrica discloses generating a signal, which has a frame comprising a plurality of slots, and includes one or more known pilot symbols **(fig 1, plurality of pilot symbols are depicted Col 6 lines 35-39).**

Dobrica discloses for transmitting the signal **Col 5 lines 42-43, transmission system).**

Dobrica discloses s for receiving the signal **(fig 2, synchronizing unit is equivalent to a receiving unit).**

Dobrica discloses carrying out coherent detection by using the pilot symbols included in the signal **(Col 7 lines 52-54, coherently detected symbol; and abstract)** after the frame synchronization is established **(fig 2, where coherent detection takes place at the slicer 5 using the pilot symbols at 1 and 2. Furthermore, synchronization occurs at 1 using the frame synchronizing signal, where this occurs before coherent detection, and sync also occurs using the delay unit 4, which also occurs before the coherent detection at 5)..**

Dobrica does not specifically disclose means for generating one or more sync words for frame alignment in each of the slots and means for establishing frame synchronization by using the sync words included in the signal, and wherein the step of carrying out coherent detection carries out coherent detection by also using the sync words after the frame synchronization is established.

Dann discloses encoding a signal in an apparatus, where a sync generator (means), provides a sync word, which periodically interrupts a pilot signal **(Col 10 lines 64-67 and Col 12 lines 8-16 and Col 12 lines 61-65).**

Dann also discloses detecting receiving a modulated signal in an apparatus (fig 8), demodulating such a signal and a decoder for detecting a sync word **(Col 13 lines 37-38 and Col 14 lines 55-57)** and making a time based correction based on the detection **(Col 14 lines 66-67, time base correction equivalent to frame alignment).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the sync word generator as disclosed by Dann within the transmitter as disclosed by Dobrica. The motivation for the use of a sync word is to control at least part of the reproduction of the modulated information in the receiver (see abstract).

The combined teachings of Dobrica and Dann do not specifically disclose wherein the means for carrying out coherent detection carries out coherent detection by also using the sync words after the frame synchronization is established.

Tsuda discloses wherein the means for carrying out coherent detection **(fig 9, 202)** carries out coherent detection by also using the sync words **(Col 2 lines 15-22, where frame synchronization is established based on the detection of the sync word)** after the frame synchronization is established **(frame synchronization is established at 207 in fig 9 based on the sync word detected in 206, however, if the previous input signal was synchronized, the current signal will now use the sync word to perform the frame synchronization, where previously a frame synchronization occurred to the previous input signal).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention was disclosed to modify the combined teachings of Dobrica and Dann, as

taught by Tsuda in Col 1 lines 60-65, that such a modification will overcome the problem of carrier offset in coherent detection.

Regarding Claim 15. Dobrica discloses receiving a signal, which has a frame comprising a plurality of slots, and includes one or more known pilot symbols **(fig 1, plurality of pilot symbols are depicted Col 6 lines 35-39)**

carrying out coherent detection by using the pilot symbols included in the signal **(Col 7 lines 52-54, coherently detected symbol; and abstract)** after the frame synchronization is established **(fig 2, where coherent detection takes place at the slicer 5 using the pilot symbols at 1 and 2. Furthermore, synchronization occurs at 1 using the frame synchronizing signal, where this occurs before coherent detection, and sync also occurs using the delay unit 4, which also occurs before the coherent detection at 5)..**

Dobrica does not specifically receiving a signal which has one or more sync words for frame synchronization, establishing frame synchronization by using the sync words included in the signal, and wherein the means for carrying out coherent detection carries out coherent detection by also using the sync words after the frame synchronization is established.

Dann discloses encoding a signal in an apparatus, where a sync generator (means), provides a sync word, which periodically interrupts a pilot signal **(Col 10 lines 64-67 and Col 12 lines 8-16 and Col 12 lines 61-65).**

detecting receiving a modulated signal in an apparatus (fig 8), demodulating such a signal and a decoder for detecting a sync word **(Col 13 lines 37-38 and Col 14 lines**

55-57) and making a time based correction based on the detection **(Col 14 lines 66-67, time base correction equivalent to frame alignment).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the sync word generator as disclosed by Dann within the transmitter as disclosed by Dobrica. The motivation for the use of a sync word is to control at least part of the reproduction of the modulated information in the receiver (see abstract).

The combined teachings of Dobrica and Dann do not specifically disclose wherein the means for carrying out coherent detection carries out coherent detection by also using the sync words after the frame synchronization is established.

Tsuda discloses wherein the means for carrying out coherent detection **(fig 9, 202)** carries out coherent detection by also using the sync words **(Col 2 lines 15-22, where frame synchronization is established based on the detection of the sync word)** after the frame synchronization is established **(frame synchronization is established at 207 in fig 9 based on the sync word detected in 206, however, if the previous input signal was synchronized, the current signal will now use the sync word to perform the frame synchronization, where previously a frame synchronization occurred to the previous input signal).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention was disclosed to modify the combined teachings of Dobrica and Dann, as taught by Tsuda in Col 1 lines 60-65, that such a modification will overcome the problem of carrier offset in coherent detection.

Regarding Claim 16. Dobrica discloses the means for generating including a pilot symbol portion at fixed intervals in each of the slots in the signal **(see fig 1).**

Dobrica does not specifically disclose the sync word portion alternating at fixed intervals in each of the slots in the signal.

Dann discloses the sync word being inserted to interrupt the pilot symbol at periodic instances **(Col 10 lines 64-67).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the sync word generator as disclosed by Dann within the transmitter as disclosed by Dobrica. The motivation for the use of a sync word is to control at least part of the reproduction of the modulated information in the receiver (see abstract).

Regarding Claim 17. Dobrica discloses the means for generating including a pilot symbol portion at fixed intervals in each of the slots in the signal **(see fig 1).**

Dobrica does not specifically disclose the sync word portion alternating at fixed intervals in each of the slots in the signal.

Dann discloses the sync word being inserted to interrupt the pilot symbol at periodic instances **(Col 10 lines 64-67).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the sync word generator as disclosed by Dann within the transmitter as disclosed by Dobrica. The motivation for the use of a sync word is to control at least part of the reproduction of the modulated information in the receiver (see abstract).

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER P. GREY whose telephone number is (571)272-3160. The examiner can normally be reached on 10AM-7:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Moe Aung can be reached on (571)272-7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aung S. Moe/
Supervisory Patent Examiner, Art Unit 2616

/Christopher P Grey/
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